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ABSTRACT

A study assessed the use of tuition differentials for upper-division courses in the School of Business at Virginia Commonwealth University, and also the impact on enrollment and revenue. This 3-year demonstration project involved the following stages: guiding the tuition differential concept through the university's formal bureaucratic approval process, developing a database to evaluate effects of the tuition differential on enrollment patterns, conducting two surveys to obtain more student information, and developing a model to examine impacts of net price on enrollment patterns. The tuition differential was applied on a per course basis to junior and senior level courses. The School of Business was allowed to retain the money from the tuition differential and spend it on quality improvements targeted directly to the students. The direct enrollment impacts of the tuition differential appeared to be minor. Indirect enrollment impacts were associated with the perceived quality improvements funded from the extra revenue generated from the differential. Implications of a tuition differential approach for issues of access, retention, and progress to graduation are noted, along with the issue of preserving high cost programs without taking money from students in lower cost programs. (SW)

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# THE EFFECT OF TUITION DIFFERENTIALS ON STUDENT ENROLLMENT PATTERNS AND UNIVERSITY REVENUES

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Cover Sheet


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**FINAL REPORT**

**THE EFFECT OF TUITION DIFFERENTIALS ON**

**STUDENT ENROLLMENT PATTERNS AND UNIVERSITY REVENUES**

PROJECT SUMMARY

The purpose of this grant was to establish a demonstration project involving the use of tuition differentials for upper division courses in the School of Business at Virginia Commonwealth University and evaluate the impact on enrollment and revenue. The School of Business was allowed to retain the money from the tuition differential and spend it on quality improvements targeted directly to the students. The direct enrollment impacts of the tuition differential appear to be quite minor. These negative enrollment effects appear to be more than offset by indirect enrollment impacts associated with the perceived quality improvements funded from the extra revenue generated from the differential.

EXECUTIVE SUMMARY

This demonstration project had two main objectives. The first objective involved two features (a) implementing a tuition differential demonstration project at VCU, an urban public university serving a high proportion of non-tradition students and (b) evaluating the impact on enrollment patterns and on university revenues from the tuition differential. The second objective was to develop issues involving the use of the traditional uniform tuition approach as opposed to an approach involving tuition differentials. These issues apply to universities throughout the country.

Among the issues raised by this project are the following:

1. Can a university restructure tuition patterns to increase initial access and maintain current overall revenue, by providing lower tuition rates the first two years of college and higher tuition rates the last two years?
2. Can a university restructure tuition patterns to maintain, rather than eliminate, high cost programs without imposing higher costs on students enrolled in lower cost programs?
3. Can a university restructure tuition patterns to enhance retention and hence revenue? More importantly, can a university use that revenue to finance quality improvements targeted toward the students? Can these quality improvements lead to increases in demand and enrollment that will more that offset the impact of higher tuition charges to some students?
4. Can a university restructure tuition patterns to reduce the cross-subsidy process that takes money from students in low cost programs and uses that money to subsidize students in higher cost programs without substantial negative impacts on enrollment?

The major outcomes of the demonstration project are first, the questions or issues that were raised as the demonstration project evolved and second, some preliminary evidence as to the answers to those issues. The process of implementing the project lead to a variety of questions being raised because the project forced a radically different perspective on issues such as access, retention, graduation. This new perspective forced an explicit consideration as to how different tuition policies affect these goals. The preliminary evidence suggests that tuition differentials may be designed in such a fashion to have minimal negative impacts on enrollment. These negative impacts may be more than offset by utilizing the funds raised from the tuition differential to provide the students with highly visible signs of educational quality improvement targeted toward the students.

The first year of the project involved several tasks. One important task was to guide the tuition differential concept through the formal bureaucratic approval process of the university. That involved far more time, effort, and energy on



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our part than originally envisioned. This task was greatly helped by the efforts of the external advisory board which met with many of the key administrators on the board's first trip to campus. The second major task of that first year was to develop a data base so that we could eventually evaluate the impact of the tuition differential on student enrollment patterns. We would strong urge other universities considering a move away from uniform tuition charge to either a separate checks approach or a tuition differential approach to develop contacts with an external group, such as ourselves, to serve as an advisory board.

The second and third years of the project involved the actual implementation of the tuition differential for the School of Business. The School of Business is an upper division school within the university. Hence, the tuition differential applied only to junior and senior level courses. It was applied on a per course basis, rather than as an across-the-board enrollment charge. Unit education cost were perceived to be high in the school, due to both the high cost of professors in areas such as Finance, Accounting and Information Systems and the need for substantial computer hardware and software to keep pace with the business world. A letter was sent to all students in the School of Business explaining the tuition differential and that the money raised from that would be used to upgrade student computer labs with a small amount going to help hire professors that the School would not be able to hire otherwise.

The Survey Research Laboratory at VCU also conducted two surveys to obtain more student information, especially with regard to the tuition differential and to the job related rewards from the college degree. There were three groups surveyed. Students who were enrolled as juniors or seniors in the School of Business were surveyed. Students who were eligible to be in the school, but had switched to other parts of the university were surveyed. Students who had left both the school and the university were also surveyed. Most students appear to have a fairly good idea as to how much the tuition different was per course and, in general, most appear to approve of the concept of charging a tuition differential for those students who are more costly to educate.

Evaluating the impact of the tuition differential on enrollment is on ongoing process. Using student data, we have developed a model that looks at the impact of net price on enrollment patterns. The preliminary work suggests that the enrollment is relatively insensitive to changes in net price especially for upper-division students. Furthermore, it appears that the students knowledge of and their perception of the improved educational outcomes due to the presence of the computer labs has enhanced enrollment. The small negative



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enrollment effect of the differential seems to have been more than offset by the positive enrollment impacts due to the quality improvements related to the expenditure of the funds from the tuition differential. Taking both the cost and the expenditure impacts into account, the net result of the differential on enrollment patterns appears to be positive rather than negative.

This finding suggests that the issues raised as this demonstration project evolved may have some strong implications for the traditional uniform price approach to tuition as well as for related issues such as access, retention and progress to graduation. One outcome is that a uniform pricing scheme, in addition to raising serious equity issues, may actually serve to stymie efforts to increase access from low income and minority groups.

Under a tuition differential approach, which has first and second year students paying less than third and fourth year students, the financial burden in the early years is reduced. For students who are at-risk students, this lowers the cost to them of attempting college. If they drop out, they are burdened with less debt if they are using loans to finance their college costs. If they do not drop out, by the time the higher tuition is charged for the third and fourth years of college, the students know how to manage the college experience and they are much closer to the financial and job related rewards from the college degree.

A tuition differential plan may also be a means to preserve high cost programs without taking money from students in lower cost programs to provide additional cross-subsidies to those students in the high cost programs. Currently universities are forced to increase tuition uniformly to pay for high cost programs. This means lower cost students are paying higher tuition to subsidize students in high cost programs. Under a uniform tuition plan, the other alternative is to drop programs. If students in those high cost programs are willing to help pay the higher cost of their program, then universities can maintain those programs rather than totally eliminate degrees in those programs if the university can develop an appropriate tuition differential plan.



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PROJECT OVERVIEW

The demonstration project started from the concern that, under a uniform tuition pricing approach, those undergraduates who are fairly inexpensive to educate are subsidizing those students who are more expensive to educate. It also seemed to be becoming apparent that those programs that are more costly, due to equipment needs or higher faculty salaries in certain areas, were going to have a difficult time maintaining, much less increasing program quality in a time of financial stress for universities. In order to better serve the students in these higher cost programs, without imposing additional cost on lower cost programs, a tuition differential approach was developed that would provided a more equitable system of financing these programs and at the same time serve to increase the quality of these programs.

The demonstration project was designed to serve two groups of students. **Those students who are more costly to educate would receive an improved educational product because of the availability of funds to maintain those programs. Those students who are less expensive to educate would not be forced to subsidize those students in the more expensive programs.** The outcome of the demonstration project indicates first, that the university may not suffer any long term enrollment losses due to the tuition differential that applies to certain subsets of the student population and second, that the revenues gained from the tuition differential can be deployed in a manner to improve the quality of education received by

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those students who are more costly to educate. This improved quality may actually serve to attract more students than the increase in cost acts to decrease enrollment and hence net enrollment is actually increased.

PURPOSE

Universities face a variety of problems in the 1990s that will probably extend into the future. State financial support for higher education is not as strong as it used to be. At the same time universities face substantial pressure to admit, enroll, retain and eventually graduate a wide variety of students, especially those from low income or minority backgrounds, who have not traditionally attended college. The traditional uniform pricing policy may actually act to stymie universities seeking to address these last issues.

On the other hand, a well designed system of tuition differentials may actually promote access, retention and graduation rates, or at least not harm those rates, while at the same time increasing university revenues and reducing the cross-subsidy from lower division students to upper division students. The additional revenues can be targeted toward factors that improve the quality of education received by the students. This quality improvement will both improve student outcomes and serve to increase the demand for the improved university product. **Taking into account both the cost, the tuition differential, and the benefits, the improved quality,**



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the overall impact may lead to increases rather than decreases in enrollment in the long run.

In some very real, very pragmatic sense the problem was to increase the quality of education for the students who are expensive to educate, without placing an excessive financial burden on those students who are less expensive to educate. The use of tuition differentials for students who are more expensive to educate, does shift more of the cost to those students. However, at the same time, it reduces the financial burden for those students who are less expensive to educate.

BACKGROUND

Virginia Commonwealth University is a public urban university in Richmond, Virginia that enrolls a wide variety of students, mostly from the local or commuter population. Many of these students would be not be classified as traditional college students. A substantial percentage of the students get into early academic problems and leave school within the first two years of enrollment. In many cases, these students who leave early carry a substantial debt burden with them. Despite that debt burden, they lack the income earning potential associated with a college degree. At the same time, many upper division students are becoming more costly to educate. This is especially true in those disciplines that require frequent computer updates or where faculty members are commanding high salaries, due to earnings potential outside of



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the university.

The School of Business fit this picture very well. Professors in areas such as Accounting, Finance or Information Systems are expensive to hire, because of competition from the business world for their services. Teaching business students has become more and more computer intensive because computers are the tools of business. Although we were not aware of it when the project started , we did discovered that non-traditional student enrollment in the business foundation program is quite high. Furthermore, a disproportionate number of business foundation students leave early due to academic problems. In recent years, during the first semester of the freshman year, business foundation students have had academic problems about 25% higher than the rest of the university.

There was also an initial perception that students in areas such as Accounting, Finance and Information Systems did have access to better paying jobs upon graduation than those from other fields. If that was the case, then students in these areas are both more expensive to educate and received a higher finance reward upon graduation. Conversely, students in other areas were perceived to be less costly to educate and did not receive the financial rewards received by those in the School of Business. Under a uniform pricing system, those students who are less costly to educate are providing a cross-subsidy to those students who are more costly to educate, both in terms of the direct educational expenditures as well as the

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potential financial rewards from the different disciplines.

**As a result of these concerns, we developed a demonstration project to utilize a tuition differential approach that would have those students taking upper division courses in the School of Business pay a tuition differential for those courses. The extra funds raised from the tuition differential would be retained by the School. The School of Business pledged to use those extra funds, generated from the tuition differential revenue, to support improved computer access for the students in the School with a small set aside to be used as a supplemental financial reward to bring scholars to the campus that the School would otherwise not be able to afford.**

PROJECT DESCRIPTION

Phase One

The demonstration project was divided into two distinct phases. The first phase had two different aspects. The first aspect of this phase was a data accumulation project. Some historic record as to enrollment would provide baseline information to evaluate the impact of tuition on enrollment over the years. The second aspect was to help guide the tuition differential through the university political process and to serve as a resource base as questions arose.

The data accumulation aspect was done through what at many institutions would be called the Institutional Research

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Office. As was discovered over the course of the study, the availability of historic data, the speed at which a university gathers and processes current data, and the type of work done under the heading of that office varies substantially from institution to institution. Our experience suggests that for other universities that wish to undertake either a separate checks approach or a tuition differential approach, and develop some empirical sense of the outcome of such a change, a good working relationship with that office is a must in order to develop the appropriate data base. Furthermore, data that may be available quickly at some institutions is not as quickly available at others.

The second aspect of the first phase, namely serving as a resource base as questions arose as the project went through the formal university approval process, was changed radically as we started the first phase of the demonstration project. The process of actually going through the university political process to allow for such a change involved far, far more time and active involvement on our part than we anticipated. The university had agreed in principle to the concept, prior to the submission of the initial proposal. Going from that agreement-in-principle to the final actual approval on the project, did require long, careful guidance of the project through the university.

Several useful by-products did emerge from that approval process. The major one, and one that may actually be one of



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the most important results of the project, is the set of questions and issues that a truly different approach does raise. The process of going from uniform pricing to tuition differentials raises a wide variety of issues and concerns and forces a rethinking of how the university approaches its students. Many of these questions are still unanswered. However, the project became better for the issues and questions that were raised. The university community has become more aware of some of the issues raised. Many of the faculty have become more aware of university enrollment patterns and issues raised by those enrollment patterns.

A second aspect of that political process was the unexpected support from some other schools on campus and their rationale for the support. The School of the Arts was going through a process of trying to consolidate a wide variety of fees for different courses into a single higher tuition charge and still have the money retained by the school. Our project certainly dove-tailed nicely with their hopes and as such they become strongly supportive of the project.

At the same time, the School of Pharmacy was involved with a plan to overhaul their educational approach and go to a two year foundation program coupled with a three year professional program, for which they hoped to charge a higher tuition. Again our demonstration project coincided nicely with their plans and received their support.

A third aspect or discovery of the first year was the



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degree of unanticipated internal discord from some sections of the university. This probably occurred for a variety of reasons. The first one, as alluded to earlier, involved the questions raised by the project. The entire notion of even discussing the concept of differences in the cost of educating different students was not always well received. The implications, or even the suggestions that there might be implications, involved with discussing those issues was a thought provoking process to a number of faculty. The whole concept of internal cross-subsidy was a subject that either faculty had never thought about or that they felt it was impolite to discuss in public.

A second reason for the internal discord relates to internal political debate over funding and the fear that some school within the university would have funds available for its use that were not made available for other schools. Strangely some of those who protested most along this line were also some of the same sources that had protested in the past about Business School faculty pay and computer requests being "too high." The fact that the School of Business was willing to have their own students pay a differential to finance these costs internally, did not prevent others within the university from being concerned that somehow they would end up short-changed in the process.

A third issue raised internally was the fear of enrollment losses. Concern was voiced that low income or minority access



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or retention would be negatively affected by the tuition differential. However, given attrition rates, mostly for academic reasons, within the first two years those students who do leave, will have a smaller debt burden under a tuition differential approach than under a uniform tuition system. If the university would go the next step and keep tuition lower in the first two years, the minority or low income access is likely to be improved. Access may actually be increased if a university goes the next step of more accurately segmenting lower division charges from upper division tuition charges.

Some of the major surprises revealed by the data accumulation were the very large number of students who do receive financial aid, the substantial dollar amounts of the financial aid received and as such the number of students for whom the explicit cost of college is zero or almost zero, at least while they are in attendance. For those students receiving financial aid in the forms of grants or scholarship, there is no post-college financial burden. For those students receiving financial aid in the form of loans, there is a subsequent financial burden. As a result of the total financial aid package, even excluding work-study programs, a substantial number of the students essentially have no direct, current, out-of-pocket expenses for college tuition.

Another major surprise revealed by the data was the large number of students who get into academic difficulty the first semester. The vast majority of these students never get



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themselves out of academic trouble and thus leave the university for academic reasons within the first two years. The flip side of that issue suggests that once the academic casualties are weeded out, most of those students who are left do make it through the system and they do find some way to finance their progress through the system.

During this first phase of the project, we established an external advisory board that came to campus to meet with the major university administrators as well as to meet with us. This meeting turned out to be of substantial benefit especially from the standpoint of "selling" the concept to some of the central administration who were very skeptical of the concept of tuition differentials. **One of the major themes that emerged from that meeting was the necessity to inform students as early as possible about the tuition differential and to provide students actual physical evidence of the use of the tuition differential funds, i.e. computer labs for the students,** as opposed to computers for the faculty. **We would very, very strongly encourage any other university considering or actually implementing tuition differentials to establish an advisory board and bring that board to campus for this type of meeting**. That meeting should include those who have actively been involved in a tuition differential project, such as ourselves, as well as the local university administrators and faculty representatives who will be involved in the decision making process.

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Phase Two

The second part of the demonstration project involved the second and third years of the project during which the tuition differential was actually implemented. The Survey Research Laboratory at VCU also surveyed students about their knowledge of the tuition differential and their perceptions as to the financial rewards from their particular field of study.

Due to a lack of communication, the information concerning the tuition differential and the use of the funds from that differential, that was supposed to have been sent from the (previous) Dean's Office, prior to the implementation of the tuition differential was not sent. Once students discovered the presence of the tuition differential, there were some phone calls to the university about this extra tuition. However, once students discovered that the differential money was to be used to upgrade student computer facilities, the student response went from negative to positive. The School of Business also quickly mailed a letter to all School of Business students explaining the dollar amount of the differential as well as the planned use of the funds that were to be raised from the differential.

That letter effectively ended the phone calls. The School of Business since then (under the direction of a new Dean) has worked carefully to communicate to the students what the tuition differential is and how the funds will be spent for



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students within the school. This communication process has been extremely effective. Since the initial, small, flurry of student complaints there have not been any new complaints. Our assumption is that the students view the quality improvement, due to the existence of the computer lab facilities, as worth the extra tuition that they are paying. Casual conversations with students, as well as the results from the questionnaire from the Survey Research Lab seem to indicate that this is the case, even if for those students who do not directly use the computer facilities in a given semester. The business students do know that there is a tuition differential, they do know that the money obtained is going into spending explicitly designed to improve the quality of the educational experience in the School of Business and they view that as a positive feature, even it they themselves are not directly using the computer lab facility in a given semester.

Enrollment Impacts

Judging the actual enrollment impacts of the tuition differential is a difficult task. **The shortest and best answer is that there appears to be a very minimal, if any, short term negative enrollment impact from the tuition differential. In the long run, it appears that the quality improvement perceived to be associated with the tuition differential may actually serve to increase enrollment.**

There are several reasons as to why it is difficult to

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assess the short run impact of the tuition differential. A major factor is that there has been a general and substantial decline in School of Business undergraduate enrollment throughout the country starting in the late 1980s. The School of Business at VCU has followed that pattern. The pattern appears to be at least slowing down, if not bottoming out at VCU. Whether that is long run change in trend, a random short run event or may be attributable to the tuition differential and its educational related expenditure, is not clear at this point and will not be clear until a number of future data years become available for analysis.

Because that knowledge will not be forthcoming until we discover, with hindsight, whether or not there was a change in trend, we develop a statistical model which seeks to focus on the impact of changes in real net tuition costs to the students. The preliminary evidence seems to suggest that on an undergraduate base of some 2,000 students in the School of Business , the short run impact seems to be something (literally) less that a handful of students. Since the School obtained in the area of $250,000-$300,000 from the tuition differential to be spent internally, the quality improvement for the remaining students seems to be worth the minor short term enrollment impact.

From the first two years of revenue from the tuition differential, the School of Business has updated four major computer labs in terms of the computer facilities themselves.



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Those rooms have also been refurbished with new desks and chairs more suitable to a computer lab facility. The tuition differential is also financing the operational support staff for those facilities. Part of the revenue generated has been used to help provide partial support for a separate Business Communication Lab as well as for a Distance Learning facility within the School of Business.

The four basic lab facilities are open to all upper division students in the School. Business Foundation students (those who have not achieved junior status), who are taking a computer course, may obtain a user account good for one semester. Students outside the School of Business who are taking an upper division course to which the tuition differential applies may also obtain an account. **The existence of these technologically up-to-date facilities, especially when compared to the previous facilities, has become a highly visible signal, to students, to parents and to the business community, of quality improvements geared toward student learning and student outcomes.**

In addition to the physical existence of these facilities and the equipment they contain, which are the most visible aspects to the students, the existence of these labs has enabled professors within the School to substantially revise how some of the courses are being taught. This occurs in one of several fashions. The facilities that are classroom oriented are directly used by classes, such as accounting and

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statistics, with a far greater hands-on technology component than was previously possible. The same technology is now available in the open student labs, so that there is an easy transfer in terms of student assignments. This revitalization or transformation of some of the lower division courses enables professors teaching upper division courses to take into account both the existence of the lab facilities themselves, as well as the changes in the students' background coming out of lower level courses. This effect may not be as apparent to the student. **However, for a number of the professors, there are some substantial changes being made in how teaching and learning is being approached because of these improvements financed from the tuition differential.** This is an additional quality enhancement due to the funds developed for the School of Business due to the tuition differential demonstration project.

Another factor that leads to the apparent minor nature of the enrollment impact is that the tuition differential does not apply to students in the Business Foundation program, which is the first two years (credit-wise) of the college years. Several aspects come into play given this factor. First, in recent years thirty to forty percent of first year students in the Business Foundation Program get into academic difficulty their first semester. (The university average is lower and ranges from the upper twenties to low thirties.) VCU has a multiple semester warning system to those in academic



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difficulty. Thus, students will not be kicked out by the university for academic reasons until after their third semester of attendance. The recent record also suggests that the vast majority of those students who get into academic trouble the first semester will never get out of that trouble. This means that there is substantial student attrition before students reach the 54 credit limit to be formally admitted into the School of Business. Aside from transfer students, most of the students who make it to junior status have learned how to get through the university -—they survived this far.

Second, the closer the students get to graduation the less responsive they are to changes in tuition. The financial reward from the college degree becomes closer and more visible to them. College education may be seen as more of an investment good and less of a consumption good as the student gets closer to graduation. The risk from the financial expenditures on college also diminishes since they have learned how to work within the system. These factors suggest that as students move through their college career, they become less and less sensitive to changes in tuition. The marginal benefits of the degree are substantially greater than the incremental costs of the last year or two of tuition, and substantially greater than the cost of the differential as applied to those final two years.

Both of these above factors suggest that the general attrition problem is relatively low once students manage to

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get into the School of Business and that they are highly unlikely to leave for financial reasons. Hence, enrollment impacts due a tuition differential that is quite small, about five percent of the total tuition charge, when applied to upper class courses is likely to be quite minor. At the upper division level, there are not that many students who leave. Both university enrollment services as well as the financial aid office, believe that the major reasons for leaving at this level involve personal or family related issues rather than financial issues.

Another issue that makes it difficult to judge the impact of the tuition differential is the substantial amount of financial aid that is received by the typical VCU student. For many students, an increase in the posted, list price for tuition is irrelevant because their financial aid package covers the cost of tuition and fees, even when those costs do happen to increase. If the tuition increase is equal to the rate of inflation, there is no real (corrected for inflation) tuition increase to the student. For those students totally covered by financial aid, there is no additional increase in out-of-pocket expenses.

Given all those interrelated factors, it is not surprising that any short term enrollment impacts due to the tuition differential are minor. Taking into account the additional benefits from the expenditure of funds within the School of Business, the net impact of the tuition differential and the


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quality improvements it financed, is probably substantially positive rather than negative. Even in the short run, the enrollment impact may be positive, if students have a planning horizon that immediately incorporates the perceived benefits from the increased quality of the educational experience into their decision making calculations.

Given the issues discussed above, especially the apparent lack of enrollment impact from the tuition differential, we redefined the empirical question to consider the impact of changes in real net price on enrollment. We could do this since we had information as to the net price (tuition minus scholarships and grants) paid by students as well as student loan information. We have developed several different academic papers from this process which are in the submission process.

The broad overall findings concur with the general thrust of the published literature in this area. Either enrollment changes are statistically insignificant with responses to changes in net cost or, when net cost is statistically significant, enrollment is highly insensitive to changes in real net price.

Our results raise some interesting issues with regard to the issues of access, retention and eventual graduation. Most approaches to these issues, may be classified as program or student oriented and usually involve a program targeted toward some subset of the student population i.e.—reducing math anxiety for at-risk students. **Our demonstration project**

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suggests that a systematic overview from the financing side may reveal alternative approaches. Issues that emerge from this alternative perspective include the following:

1. Can a university increase initial access by restructuring tuition to have the first two years of college being substantially less expensive than the last two years?
2. By restructuring the tuition pattern between less costly and more costly programs, can a university reduce the cross-subsidy that currently exists without losses in overall enrollment?
3. Can a university restructure tuition patterns to reduce attrition and hence enhance enrollment and revenue -- and use that revenue enhancement to finance quality improvements or to finance programs internally which are targeted toward improving access, retention and graduation rates for non-traditional students?

This FIPSE demonstration project suggests there is great potential for the answers to those questions to be "YES." Raising these questions from a different perspective, the tuition side, about issues such as access, retention and graduation, especially in times of fiscal difficulty, may be the most important outcome of this demonstration project with regard to its potential impact on other institutions.

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